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Piero Losi

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EXAMINER

FISCHER, JUSTIN R

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/584,798 | Applicant(s) LOSI ET AL. | |
| | Examiner Justin R. Fischer | Art Unit 1791 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 35-41 and 44-118 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 35-41 and 44-118 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>070710</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
2. Claims 35-41, 44-53, 69 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda (JP 53080602, of record) and further in view of Masson (US 3,773,096, of record), Mine (JP 2003-320804, of record), and/or Ito (JP 2002-52906, of record).

As best depicted in Figure 2, Fukuda teaches a pneumatic tire construction having a tread formed of a first elastomeric material 6 and a second elastomeric material 5 (individual sectors separated by regions of first elastomeric materials), wherein said first elastomeric material is included in a groove section of the tread. The reference further teaches that the first elastomeric material provides higher wear resistance than the second elastomeric material. While the reference fails to expressly disclose the claimed modulus, one of ordinary skill in the art at the time of the invention would have recognized such a disclosure as teaching a higher modulus for the first elastomeric material (higher modulus materials demonstrate higher wear resistance). As to the specific values for the modulus, Masson (Column 4, Lines 15+), Mine (Abstract), and/or Ito (Abstract) teach that rubber compositions having a modulus in accordance to the claimed invention are used in the manufacture of tire treads. It is emphasized that Fukuda generally teaches a structure in which a first elastomeric material has a greater modulus of elasticity (greater wear resistance), as compared to a

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second elastomeric material, without limitation. One of ordinary skill in the art at the time of the invention would have readily appreciated a wide variety of modulus values for each material as long as the desired wear resistance relationship (modulus relationship) is maintained between respective materials.

Absent any conclusive showing of unexpected results, one of ordinary skill in the art at the time of the invention would have found it obvious to use first and second elastomeric materials satisfying the claimed invention. It is further noted that applicant's original disclosure fails to establish a criticality for the exact modulus values used for respective tread elastomeric materials. For example, it is unclear any realized benefits are simply a result of having differing moduli or if said benefits are a result of having differing moduli as long as the first elastomeric material has a modulus greater than 20 MPa and less than 80 MPa. Also, tensile and compressive modulus are approximately equal to one another in rubber compositions.

Regarding claim 36, Fukuda teaches a second elastomeric material having a lower wear resistance (and thus a lower a modulus of elasticity) as compared to said first elastomeric material without limitation in regards to the exact modulus values or the difference between modulus values. Absent any conclusive showing of unexpected results, one having ordinary skill in the art at the time of the invention would have found it obvious to form the second elastomeric material in accordance to the claim given the general disclosure of common modulus values for the tread and the disclosed modulus /wear relationship (in Fukuda) between the first and second elastomeric materials.

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With respect to claims 35 and 37-39, the combination of references suggest a wide variety of embodiments in which the respective moduli satisfy the broad ranges of the claimed invention and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed ranges.

With respect to claims 40 and 41, the claimed ranges are extremely broad and include relative language to define their lower and upper limits ("about"). Additionally, the claimed values are consistent with those commonly associated with tire components, including tread compositions. Absent any conclusive showing of unexpected, one of ordinary skill in the art at the time of the invention would have found it obvious to use compositions having the claimed hardness. It is emphasized that hardness values would be expected to be in the range of at least 50 and a difference of at least 10 percent, more preferably at least 15percent, suggests a hardness difference on the order of at least 5, which is consistent with rubber compositions having different moduli and hardness (as is the case in Fukuda).

As to claim 44, grooves are formed within first sectors 6.

Regarding claim 45, said first sectors extend over the entire thickness of the tread.

With respect to claims 46-49, whether or not the base portions of the first or second elastomeric material are connected to one another (and thus define an "additional layer") does not appear to be critical to the inventive concept of Fukuda. It is emphasized that the primary concern of Fukuda is in the inclusion of a first elastomeric material in the vicinity of the groove sections in order to improve wear/abrasion

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resistance. One of ordinary skill in the art at the time of the invention would have readily appreciated an arrangement in which the base portions of respective first sectors or second sectors are connected to one another. In this instance, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed thickness of the connecting portion (claimed values are consistent with the values conventionally associated with crown reinforcing layers in general and such dimensions are commonly disclosed in terms of a broad range of values). Lastly, it is emphasized that tread/cap and similar multi-layered tread designs are commonly formed with a wide variety of arrangements, including ones in which a ground contacting rubber is connected within the tire to define an underlayer.

With further respect to claims 46 and 48, the figures of Fukuda appear to depict an assembly in which the second material includes a plurality of sectors that contact the ground and are connected beneath the first sectors to define an underlayer.

Regarding claim 50, said first sector has a width greater than a width of the groove.

As to claim 51, the figures generally depict the first sectors as having a slightly greater width than the corresponding grooves- such a depiction appears to be consistent with the broad range of the claimed invention (difference of between 4-10 mm) and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed arrangement.

Regarding claim 52, the grooves have a depth that extends beyond the meridian plane of the first sectors.

With respect to claim 69, the language “about 30 MPa” is not seen to define over the modulus suggested by Masson, Ito, and/or Mine..

3. Claims 53-68 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda, Masson, Mine, and Ito as applied in claim 53 above and further in view of Caretta (US 6,635,132, of record).

As detailed above, Fukuda describes a tire construction comprising first and second sectors that define the tread, wherein said sectors are independent of one another. While the reference is silent as to the specific manufacturing method, the claimed method including a first and second delivery member is consistent with known tire manufacturing methods, as shown for example by Caretta (Figures 1 and 4). The reference further teaches that the robotized arm 16 can be used to position a toroidal support or drum in front of a plurality of extruders and such a method is applicable to a wide variety of tire components, including tire tread bands (Column 8, Lines 7+). In this instance, said plurality of extruders are associated with the deposition of said first and second sectors. Additionally, Figure 4 expressly depicts a method in which the toroidal support is rotated around the axis of rotation (rotation around axis X) and moved along a direction substantially parallel to a rotation axis of the toroidal support (movement around axis E).

One of ordinary skill in the art at the time of the invention would have found it obvious to position the first and second sectors of Fukuda on a toroidal support using the method described Caretta as it is consistent with the known manufacturing methods

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and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed manufacturing method.

As to claim 61, the tire construction of Fukuda in view of Caretta would include a plurality of coils (first and second sectors) axially arranged side by side.

With respect to claim 62, any toroidal support or drum can be viewed as being “substantially” rigid.

Regarding claims 63-68, as detailed above, one of ordinary skill in the art at the time of the invention would have found it obvious to form the first or second sectors (at the base regions) as a continuous tire component- such a construction is consistent with the conventional manner in which tread/cap designs and other multi-layer tread designs are manufactured. It is further noted that applicant has not provided a conclusive showing of unexpected results to establish a criticality for the manufacture of a continuous component comprising either one of the first or second sectors (particularly evident in view of the fact that both embodiments are claimed).

4. Claims 71-84 and 96-107 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda and further in view of (a) Masson, Mine, and/or Ito and (b) Matsuo (EP 847,800, of record) and/or Tsuboi (JP 2000-118212, of record).

Fukuda in view of Masson, Mine, and/or Ito substantially teach the claimed tire assembly (see Paragraph 2 above). In this instance, the ground contacting first sectors are not depicted as being connected or joined to define an underlayer. In any event, it is extremely well known in similar tire assemblies to connect or join similar ground contacting sectors, as shown for example by Matsuo and/or Tsuboi. It is emphasized

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that there are an extremely limited number of possible configuration regarding the connection of first or second sectors to define such an underlayer and applicant has not provided a conclusive showing of unexpected results to establish a criticality of the claimed arrangement. It is additionally noted that applicant even claims each of the possible configurations (underlayer defined by either one of first or second sectors-claims 46-48), further suggesting that the claimed arrangement in claim 71 does not demonstrate unexpected results.

Also, such an underlayer would be "suitable for providing global rigidity to the tread" in as much as the underlayer of the claimed invention satisfies such a characteristic (claim language fails to require any additional structure).

Regarding claims 72 and 97, Fukuda teaches a second elastomeric material having a lower wear resistance (and thus a lower a modulus of elasticity) as compared to said first elastomeric material without limitation in regards to the exact modulus values or the difference between modulus values. Absent any conclusive showing of unexpected results, one having ordinary skill in the art at the time of the invention would have found it obvious to form the second elastomeric material in accordance to the claim given the general disclosure of common modulus values for the tread and the disclosed modulus /wear relationship (in Fukuda) between the first and second elastomeric materials.

With respect to claims 71, 73-75, 96, and 98-100, the combination of references suggest a wide variety of embodiments in which the respective moduli satisfy the broad

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ranges of the claimed invention and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed ranges.

With respect to claims 76-79, 101, and 102, the claimed ranges are extremely broad and include relative language to define their lower and upper limits ("about"). Additionally, the claimed values are consistent with those commonly associated with tire components, including tread compositions. Absent any conclusive showing of unexpected, one of ordinary skill in the art at the time of the invention would have found it obvious to use compositions having the claimed hardness. It is emphasized that hardness values would be expected to be in the range of at least 50 and a difference of at least 10 percent, more preferably at least 15 percent, suggests a hardness difference on the order of at least 5, which is consistent with rubber compositions having different moduli and hardness (as is the case in Fukuda).

As to claims 80 and 103, grooves are formed within first sectors 6.

Regarding claims 82 and 105, said first sector has a width greater than a width of the groove.

As to claims 83 and 106, the figures generally depict the first sectors as having a slightly greater width than the corresponding grooves- such a depiction appears to be consistent with the broad range of the claimed invention (difference of between 4-10 mm) and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed arrangement.

Regarding claims 84 and 107, the grooves have a depth that extends beyond the meridian plane of the first sectors.

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5. Claims 85-95 and 108-118 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fukuda and further in view of (a) Masson, Mine, and/or Ito, (b) Matsuo and/or Tsuboi, and (c) Caretta.

As detailed above, Fukuda describes a tire construction comprising first and second sectors that define the tread, wherein said sectors are independent of one another. While the reference is silent as to the specific manufacturing method, the claimed method including a first and second delivery member is consistent with known tire manufacturing methods, as shown for example by Caretta (Figures 1 and 4). The reference further teaches that the robotized arm 16 can be used to position a toroidal support or drum in front of a plurality of extruders and such a method is applicable to a wide variety of tire components, including tire tread bands (Column 8, Lines 7+). In this instance, said plurality of extruders are associated with the deposition of said first and second sectors. Additionally, Figure 4 expressly depicts a method in which the toroidal support is rotated around the axis of rotation (rotation around axis X) and moved along a direction substantially parallel to a rotation axis of the toroidal support (movement around axis E).

One of ordinary skill in the art at the time of the invention would have found it obvious to position the first and second sectors of Fukuda on a toroidal support using the method described Caretta as it is consistent with the known manufacturing methods and applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed manufacturing method.

As to claims 93 and 116, the tire construction of Fukuda in view of Caretta would include a plurality of coils (first and second sectors) axially arranged side by side.

With respect to claims 94 and 117, any toroidal support or drum can be viewed as being “substantially” rigid.

Regarding claims 95 and 118, the claimed thickness is consistent with the thickness of layers in the belt region, whether they are belt reinforcing layers or simply rubber layers. Additionally, applicant has not provided a conclusive showing of unexpected results to establish a criticality for the claimed thickness. It is emphasized that crown reinforcing layers are commonly described as having a broad range of thickness values and such ranges conventionally included the values set forth by the claimed invention.

Response to Arguments

6. Applicant's arguments filed July 14, 2010 have been fully considered but they are not persuasive. It is initially noted that claims 69 and 70 were erroneously excluded from the previous rejection heading but it is evident that the claims simply narrow the broad limitation of the independent claims 35 and 53 and thus, are properly rejectable under the same combination of references. It is emphasized that the claims were rejected but the claim numbers were simply excluded from the heading.

Applicant argues that Fukuda nowhere appears to disclose a particular ratio between the hardness of the first and second sectors selected such that the cross section a longitudinal groove remains substantially constant while the tire is in use.

First, the original disclosure appears to teach that the above noted characteristics directly result from being positioned within a first tread sector having a high modulus of elasticity under compression, as opposed to resulting from a specific hardness ratio (Page 3, Lines 23+). Second, Fukuda expressly depicts multiple tire constructions having grooves in a first tread sector, wherein said sector has a greater wear resistance, and thus a greater hardness and modulus, than an adjacent second tread sector. As such, one would similarly expect the cross section of the grooves of Fukuda to remain substantially constant when a radially outer surface of the tread band is in contact with the ground.

Also, with respect to the hardness ratio, it is agreed that Fukuda is silent with respect to the exact hardness values for respective tread sectors. However, as detailed above, the critical feature of Fukuda is the manufacture of a tire having first and second tread sectors, wherein the rubber composition of said first sectors has a greater wear resistance, and thus a greater hardness and modulus, than respective second tread sectors. One would have readily appreciated a wide variety of embodiments as long as the first tread sectors are formed with a harder rubber composition that demonstrates greater wear resistance and such includes the large number of embodiments encompassed by the claimed quantitative relationship. Lastly, applicant has not provided experimental data to establish a criticality for a hardness ratio between 1.15 and 2.70.

Regarding the underlayer, the general description of “achieving global rigidity of the tread” does not provide a conclusive showing of unexpected results for the inclusion

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of said underlayer. It is further emphasized that applicant even includes claims directed to embodiments in which said underlayer is formed by the first sectors or said underlayer is formed by said second sectors, further suggesting that an underlayer formed with said first sectors does not result in a tire demonstrating superior and unexpected characteristics.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Justin R. Fischer** whose telephone number is **(571) 272-1215**. The examiner can normally be reached on M-F (7:30-4:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Justin Fischer
/Justin R Fischer/
Primary Examiner, Art Unit 1791
September 16, 2010